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TO: Group Art Unit 1645

FAX NO.: (703) 872-9302

FROM: D. Benjamin Borson, Ph.D.

RE: U.S. Patent Application No. 10/722,033; Inventors: Satoru Miyano et al.  
Entitled, "Inferring Gene Regulatory Networks from Time-Ordered  
Gene Express Data Using Differential Equations"

Our File: GENN-01009US1 DBB

DATE: September 22, 2004 Total Pages : 10, including cover sheet

Original will follow by mail: No

If you do not receive all of the pages, please call D. Benjamin Borson, Ph.D. at  
(415) 362.3800.

MESSAGE (if any):

Attached please find the following:

- 1) Information Disclosure Statement;
- 2) International Search Report;
- 3) Deposit Account Authorization; and
- 4) Certificate of Facsimile.

This facsimile is intended only for the addressee and those authorized by the addressee to receive it. Any use, dissemination, distribution or copying of this facsimile by any others is prohibited. Any others receiving this facsimile are requested to notify FLIESLER MEYER LLP immediately by telephone or fax and to return the original facsimile to FLIESLER MEYER LLP.

SEP 22 2004

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application No. 10/722,033

Inventors: Satoru Miyano et al.

Filed: November 25, 2003

Title: **Inferring Gene Regulatory Networks from Time-Ordered Gene Express Data Using Differential Equations**

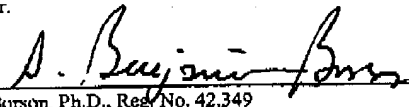
Art Unit: 1645

Examiner: Not Assigned

Customer No. 23910

## CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being transmitted by facsimile to the Commissioner for Patents, the United States Patent and Trademark Office, Facsimile No. (703) 872-9302, on September 22, 2004. Total number of pages transmitted: 10 sheets, including cover.

  
\_\_\_\_\_  
D. Benjamin Burson, Ph.D., Reg. No. 42,349  
Signature Date: September 22, 2004 (Attorney Signature)

## INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.56

Mail Stop IDS  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

It is requested that the information identified in this statement be considered by the Examiner and made of record in the above-identified application. This statement is not intended to represent that a search has been made or that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56. If this is a continuation, divisional or continuation-in-part application, it is understood that the Examiner will consider all information which was considered by the Office in a parent application. MPEP §609. Such information therefore is not listed herein unless it is desired that the information be printed on a patent issuing from the subject application.

*Enclosed with this statement are the following:*

- ☒ Form PTO-1449. The Examiner is requested to initial the form and return it to the undersigned in accordance with M.P.E.P. §609.

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Attorney Docket No.: GENN-01009US1  
dhh/genm/01009US1/IDS1

104.001:123103  
09/22/04-08:05

- ✓ A copy of the International Search Report mailed 18 August 2004.
- ✓ The present application is being/was filed after June 30, 2003. In accordance with the pre-official gazette waiver of 37 CFR 1.98 (a)(2)(i) posted at: [pac/dapp/opla/preognotice/idswouscopies.htm](http://pac/dapp/opla/preognotice/idswouscopies.htm), copies of cited U.S. patents and publications are not enclosed. However, copies of cited foreign patent documents and non-patent literature are enclosed in accordance with 37 CFR 1.98(a)(2), as still required, except for those items designated by an asterisk (\*), which were previously submitted by the applicant in a parent application, from which benefit under 35 U.S.C. §120 is claimed, with an *Information Disclosure Statement* submitted in the parent application which complies with the September 8, 2000 or subsequent revision of 37 C.F.R. §1.98(a-c), as allowed under 37 C.F.R. §1.98(d)(1).
- The present application was filed prior to June 30, 2003. A copy of each cited document as required by 37 C.F.R. §1.98 is enclosed, except for those items designated by an asterisk (\*), which were previously submitted by the applicant in a parent application, from which benefit under 35 U.S.C. §120 is claimed, with an *Information Disclosure Statement* submitted in the parent application which complies with the September 8, 2000 or subsequent revision of 37 C.F.R. §1.98(a-c), as allowed under 37 C.F.R. §1.98(d)(1).
- If any of the cited/submitted documents is in a foreign language, a concise explanation of relevance is provided pursuant to 37 C.F.R. §1.98(a)(3)(i). For foreign language documents cited in a search report by a foreign patent office, the requirement for a concise explanation of relevance is satisfied by the submission herewith of an English language version of the search report. MPEP §609A(3). If a written English-language translation of a non-English language document, or portion thereof, is within the possession, custody or control of, or is readily available to any individual designated in §1.56(c), a copy of the translation accompanies this statement, 37 C.F.R. §1.98(a)(3)(ii), and satisfies the requirement for a concise explanation of relevance, MPEP §609A(3).
- **PTA Statement under 37 C.F.R. §1.704(d).** Each item of information contained in the *Information Disclosure Statement* was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in §1.56(c) more than thirty days prior to the filing of the *Information Disclosure Statement*.

***This statement should be considered because:***

- ✓ 37 C.F.R. §1.97(b). This statement qualifies under 37 C.F.R. §1.97, subsection (b) because:
  - (1) It is being filed within three months of the filing date of an application other than a continued prosecution application under § 1.53(d);  
— OR —
  - (2) It is being filed within 3 months of entry of a national stage;  
— OR —
  - (3) It is being filed before the mailing date of the first Office Action on the merits,  
— OR —
  - (4) It is being filed before the mailing date of the first Office Action after the filing of a Request for Continued Examination under 37 C.F.R. §1.114.

— 37 C.F.R. §1.97(c). Although it may not qualify under subsection (b), this statement qualifies under 37 C.F.R. §1.97, subsection (c) because:

- (1) It is being filed before the mailing date of a FINAL Office Action, a Notice of Allowance, or an action that otherwise closes prosecution in the subject application, whichever occurs first.

-- AND (check at least one of the following) --

- (1) It is accompanied by a STATEMENT as set forth in 37 C.F.R. §1.97(e).  
-- OR --  
— (2) It is accompanied by the \$180 fee set forth in 37 C.F.R. §1.17(p).

— 37 C.F.R. §1.97(d). Although it may not qualify under subsection (b) or (c), this statement qualifies under 37 C.F.R. §1.97, subsection (d) because:

- (1) It is being filed on or before payment of the Issue Fee;  
-- AND --  
(2) It is accompanied by a STATEMENT as set forth in 37 C.F.R. §1.97(e);  
-- AND --  
(3) It is accompanied by the \$180 fee set forth in 37 C.F.R. §1.17(p).

✓ **Fee Authorization.** The Commissioner is hereby authorized to charge any deficiencies or credit any overpayment to Deposit Account No. 06-1325. A duplicate copy of this authorization is enclosed.

Respectfully submitted,

FLIESLER MEYER LLP

Date: September 22, 2004

By: D. Benjamin Borson  
D. Benjamin Borson, Ph.D.  
Reg. No. 42,349

FLIESLER MEYER LLP  
Four Embarcadero Center, Fourth Floor  
San Francisco, California 94111-4156  
Telephone (415) 362-3800

- 3 -

Attorney Docket No.: GENN-01009US1  
dbb/genn/01009US1/IDS1

104.001:123103  
09/22/04-08:05

Sheet \_\_\_\_ of \_\_\_\_

Form PTO-1449 (Substitute)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	Attorney Docket Number <b>GENN-01009US1</b>	Serial/Patent Number <b>10/722,033</b>
<b>Information Disclosure Statement</b> <b>BY APPLICANT</b> <i>(Use several sheets if necessary)</i>		Applicant/Patent Owner <b>Satoru Miyano et al.</b>	
		Filing/Issue Date <b>November 25, 2003</b>	Group Art Unit <b>1645</b>

## U.S. PATENTS

Examiner Initial	Patent Number	Issue Date	First Named Inventor	Class	Subclass	Filing Date

## U.S. PATENT PUBLICATIONS

Examiner Initial	Patent Application Publication Number	Publication Date	Applicant
	US2003/0215786	November 20, 2003	Colin Hill et al.
	US2003/0139886	July 24, 2003	Leon J. Bodzin et al.
	US2003/0144823	July 31, 2003	Jeffrey J. Fox et al.
	US2003/0018457	January 23, 2003	Gregory S. Lett et al.

## PENDING U.S. PATENT APPLICATIONS

Examiner Initial	Application Number	Filing Date	First Named Inventor	Petition to Expunge? Yes   No

## OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)

Examiner	Date Considered
<p>*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p> <p>*1 = Copy not submitted because it was submitted in prior application SN __/__, filed ____, 20__, relied on under 35 USC §120.</p> <p>*2 = Copy not submitted because it was submitted in prior application SN __/__, filed ____, 20__, relied on under 35 USC §120.</p>	

STATEMENT

(Attachment to Information Disclosure Statement)  
(Use only if required)

☒ 37 C.F.R. §1.97(e)(1). THE UNDERSIGNED ATTORNEY HEREBY STATES THAT each item of information contained in this *Information Disclosure Statement* was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this *Information Disclosure Statement*; or

☐ 37 C.F.R. §1.97(e)(2). THE UNDERSIGNED ATTORNEY HEREBY STATES THAT no item of information contained in this *Information Disclosure Statement* was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing this statement after making reasonable inquiry, no item of information contained in this *Information Disclosure Statement* was known to any individual designated in §1.56(c) more than three months prior to the filing of this statement.

Respectfully submitted,

FLIESLER MEYER LLP

Date: \_\_\_\_\_

By: \_\_\_\_\_

D. Benjamin Borson  
Reg. No. 42,349

FLIESLER MEYER LLP  
Four Embarcadero Center, Suite 400  
San Francisco, California 94111-4156  
Telephone: (415) 362-3800

60/428,827

## PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
D. BENJAMIN BORSON  
FLIESLER DUBB MEYER & LOVERJOY LLP  
FOUR EMBARCADERO CENTER, SUITE 400  
SAN FRANCISCO, CA 94111-4156

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT  
OR THE DECLARATION

(PCT Rule 44.1)

Date of Mailing  
(day/month/year)

18 AUG 2004

Applicant's or agent's file reference  
GENN01009WO0 ✓

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.  
PCT/US03/37475 ✓

International filing date  
(day/month/year)

25 November 2003 (25.11.2003) ✓

Applicant  
GENE NETWORKS, INC. ✓

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34, chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

## 4. Reminders

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90 bis.1 and 90 bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the PCT Applicant's Guide, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
Facsimile No. (703) 872-9306

Authorized officer

Valerie Bell Harris for  
Ardin Marchetti

Telephone No. (571) 272-1600

Form PCT/ISA/220 (April 2002)

Fliesler, Meyer LLP

(See notes on accompanying sheet)

File: GENN-01009US1

Action Item: Int'l Search Report - IAS?

Date Due: September 13, 2004

Critical Date: November 18, 2004

Attorney Path: DAB

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference GENN01009W00	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US03/37475	International filing date (day/month/year) 25 November 2003 (25.11.2003)	(Earliest) Priority Date (day/month/year) 25 November 2002 (25.11.2002)
Applicant GENE NETWORKS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title.

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract.

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures

Form PCT/ISA/210 (first sheet) (July 1998)



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/37475

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 33/48

US CL : 702/19

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 702/19,20,27; 435/6,69.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X — P,Y	US 2003/0215786 A1 (HILL et al.) 20 November 2003, see especially the abstract	1, 17, 18, 27, & 28 2-16 & 19-26
P,X — P,Y	US 2003/0139886 A1 (BODZIN et al.) 24 July 2003, see especially the abstract and the SUMMARY OF THE INVENTION section in paragraphs [0042 - 0062]	1,17,18,27, & 28 2-16 & 19-26
P,X — P,Y	US 2003/0144823 A1 (FOX et al.) 31 July 2003, see especially the abstract and the DETAILED DESCRIPTION in paragraphs [0018 - 0135]	1,17,18,27, & 28 2-16 & 19-26
P,X — P,Y	US 2003/0018457 A1 (LETT et al.) 23 January 2003, see especially the abstract and the DESCRIPTION OF THE PREFERRED EMBODIMENTS in paragraphs [0036 - 0103]	1,17,18,27, & 28 2-16 & 19-26

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another claim or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principles or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z"

document member of the same patent family

Date of the actual completion of the international search

31 July 2004 (31.07.2004)

Date of mailing of the international search report

18 AUG 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 872-9306

Authorized officer

Valerie Red-Harris for  
Arthur Marschner

Telephone No. (571) 272-1600

Form PCT/ISA/210 (second sheet) (July 1998)

## INTERNATIONAL SEARCH REPORT

PCT/US03/37475

**Continuation of B. FIELDS SEARCHED Item 3:**

WEST, CAS, BIOSIS, EMBASE, WPI, BIOTECH ABS., & MEDLINE covering terms: network, linear, differential, equations, gene, expression, library, set, time, course, matrix, sparse, zero, coefficients, second, constant, vector, exp, solve, estimate, error, independent, log, likelihood, formula, function, average, and probability

Form PCT/ISA/210 (second sheet) (July 1998)